U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

PB-257 711

Manpower Planning Criteria Manual for State Water Pollution Control Agencies

Abt Associates, Inc, Cambridge, Mass

Prepared for

Environmental Protection Agency, Washington, D C

1973

PB 257 711

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NATIONAL TECHNICAL
INFORMATION SERVICE
U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

BIBLIOGRAPHIC DATA SHEET	1. Report No.	2.	3. Recipient's Accession No. PB-257 711
4. Title and Subtitle: Manpower Planning Criteria Manual for State Water Pollution Control Agencies			5. Report Date: 1973 6.
7. Author(s)			8. Performing Organization Rept. No.
9. Performing Organization Name and Address: Abt Associates, Inc., Cambridge, Mass.			10. Project/Task/Work Unit No. 11. Contract/Grant No.
12. Sponsoring Organization Name and Address: Environmental Protection Agency, Washington, D. C.			13. Type of Report & Period Covered 14.

15. Supplementary Notes: Prepared in cooperation with Environmental Protection Agency, Washington, D.C.

16. Abstracts:

The Manpower Development Staff, Office of Water Program Operations, Environmental Protection Agency (EPA) is responsible for forecasting the number and types of personnel needed by various levels of government, private, industry, and other organizations which have a role in implementing this legislation. To assist in this determination process the EPA is presently working with and assisting state and local governments in establishing their own in-house manpower planning capabilities by developing a systematic approach to manpower planning. One aspect of this is the development of manpower planning criteria. The criteria presented herein consist of selected programs definitions, associated occupation descriptions and staffing guides for estimating state water pollution control agency manpower and training requirements.

17. Key Words and Document Analysis. 17a. Descriptors:

*Manpower utilization,
*Water pollution abatement,
*State government,
Organizations,
Manuals,
Personnel management,
Criteria,
Forecasting,
Organizations,
Job analysis,
Descriptions,
Guidelines,
Requirements,
Financing,
Local government.

17b. Identifiers/Open-Ended Terms:

State agencies,
Environmental Protection Agency,
Federal Water Pollution Control Act Amendments of 1972.

17c. COSATI Field/Group: 5 I, 13 B,

18. Availability Statement: National Technical Information Service, Springfield, Virginia 22161	19. Security Class (This Report): UNCLASSIFIED	21. No. of Pages: 71p.
	20. Security Class (This Page): UNCLASSIFIED	22. Price: 4.50/2.25

FORM NTIS-35 (REV. 3-72) THIS FORM MAY BE REPRODUCED USCOMM-DC 14952-P72

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MANPOWER PLANNING CRITERIA MANUAL FOR STATE WATER POLLUTION CONTROL AGENCIES

INTRODUCTION

The Manpower Development Staff, Office of Water Program Operations, Environmental Protection Agency (EPA) is responsible, under Section 104(g)(2) of the 1972 Water Pollution Control Amendments for forecasting the number and types of personnel needed by various levels of government, private, industry, and other organizations which have a role in implementing this legislation. To assist in this determination process the EPA is presently working with and assisting state and local governments in establishing their own in-house manpower planning capabilities by developing a systematic approach to manpower planning. One aspect of this is the development of manpower planning criteria. These criteria are in the form of occupation descriptions which portray the types of personnel required to perform a given water pollution control function; and staffing guides which indicate the number of personnel, by type, required to perform a given level of work activity.

PURPOSE

The manpower planning criteria presented herein consist of selected programs definitions, associated occupation descriptions and staffing guides for estimating state water pollution control agency manpower and training requirements for implementing the 1972 Water Pollution Control Amendments. Federal, state and local agencies will find these planning criteria useful in developing manpower projections, training requirements, and numerous other programmatic and budgetary decision-making processes.

SCOPE

These manpower planning criteria were developed with the cooperation of EPA Headquarters program offices by personnel from the Manpower Development Staff. Each EPA program office represented herein systematically identified those sections of the 1972 Water Pollution Control Act Amendments for which they were responsible, described their program strategy, described the role of the various levels of government in implementing this strategy, and finally focused on the specific human resource needs of the states in order that the states might fulfill their roles effectively. Manpower estimates for various water pollution control functions were determined through the use of a "workload indicator" which dimensions various units of work (output) with human resource requirements.

The data contained herein represent the first iteration of an on-going process which will refine and validate planning criteria. Therefore, the user should use these data for estimation purpose only and should use his own judgement regarding their applicability to specific local situations. Reactions from users, particularly those which add new information not contained in the enclosed planning criteria, will help to refine these data and improve their utility. In the meantime, this first iteration should permit interested personnel to develop adequate preliminary estimates of state manpower and training requirements on a functional basis.

I. PROGRAM AREA - MONITORING AND DATA SUPPORT

FUNCTION: WATER MONITORING AND SURVEILLANCE

SUB-FUNCTION: WATER QUALITY SURVEY AND FIXED SAMPLING NETWORK OPERATIONS

FUNCTION:

Water Monitoring and Surveillance

Develop and implement or improve and expand water monitoring and surveillance programs to meet requirements of the Federal Water Pollution Control Act Amendments of 1972.

SUB-FUNCTION:

Water Quality Survey and Fixed Sampling Network Operations

a) designing studies to meet information needs, concerning current water quality, long-term trends, effects of effluents, etc. The same skills required to design and produce such studies are those needed to evaluate results.

b) development of sampling logistics, actual sampling including use and enforcement of use of acceptable sampling procedures, equipment maintenance, and making field determinations of certain parameters.

c) laboratory operation and maintenance, analysis for physical, chemical, and biological parameters, proper recording of results, and enforcement of an adequate quality control program.

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PROGRAM DESCRIPTION

MONITORING AND DATA SUPPORT

I. Outline of Legislation:

A. Federal Water Pollution Control Act Amendments of 1972 (Water Bill), PL 92-500

Sec. 104(a)(5) - "in cooperation with States, and other Federal agencies establish, equip and maintain a Water Quality Surveillance System..."

Sec. 106(e)(1) - "...Administrator shall not make any (State Program) grant (unless the State makes provision to) monitor and to compile and analyze data on...the quality of navigable waters and...groundwaters...and...include it in the report required under Section 305..."

Parentheses Added

Sec. 303(e) - "Each State shall have a continuing planning process..."

Sec. 305(a) - "...Administrator shall prepare a report to be submitted...on January 1, 1974 which shall...describe the specific quality of all navigable waters...an inventory of all point sources of discharge..."

Sec. 305(b) - "...Each State shall...submit...each year (beginning January 1, 1975)...a description of the quality of all navigable waters...the extent to which...waters provide for...shellfish, fish and wildlife..."

Parentheses Added

Sec. 308(a) - "...Administrator shall require the...operator of any point source to...sample such effluents...in such manner as the Administrator shall prescribe...or his authorized representative...shall have right of entry..."

Sec. 314 - "Clean Lakes"

Title IV - "...any...discharge will comply with...provision..."

Underlining Added

Preceding page blank

B. Marine Protection, Research and Sanctuaries Act of 1972 (Ocean Dumping Bill), PL 92-532

Sec. 102(a) - Permits and criteria for ocean dumping

Sec. 107 - Surveillance and Enforcement - CG

Title II - Monitoring and Research - NOAA

II. Objective: To monitor the state of the Nation's waters in conformance with current legislative and executive determination.

III. Strategy:

A. To support States technically and financially in developing an adequate program, and effluent monitoring and surveillance.

B. To fulfill congressional directive and other reporting requirements.

C. To provide technical assistance and support as required.

IV. Roles and Responsibilities:

A. EPA Headquarters -

1. Develops and promulgates regulations and guidelines relating to state monitoring and surveillance including minimum specifications for such a program.
2. Reviews for approval State monitoring plans.
3. Monitors compliance of states to approved plans.
4. Carries out necessary intra- and interagency coordination.
5. Evaluates adequacy of existing monitoring network including federal and state stations.
6. Provides technical assistance as required.
7. Provides information system support to Regions and States.

B. EPA Regions

1. Works closely with and provides technical assistance to states in design and implementation of monitoring and surveillance programs encompassing all phases of such program including field, laboratory, data analysis, and information systems support.
2. Designs and carries out monitoring surveys and operates routine monitoring stations.

3. Reviews and evaluates state monitoring programs as represented in states applications for program grants.

4. Performs annual mid-year review of state progress toward carrying out plans.

C. Other Federal Agencies

1. Consider need for environmental protection-oriented data when establishing and operating water sampling or monitoring programs.

2. Participate in monitoring surveys and routine monitoring networks.

3. Provide use of specialized equipment.

D. States

1. The primary responsibility for monitoring and surveillance rests on the States which, in accordance with regulations and guidelines promulgated by EPA Headquarters, must have monitoring programs to meet specific reporting needs in order to receive program grants.

E. The Private Sector

Industires, as well as municipalities, will be required to self-monitor effluent flows and characteristics.

F. Effects of Alternate Strategies

The basic strategy does not change with varying levels of funding. Only timing is affected.

Program Monitoring and Data Support Division

Function Water Monitoring & Surveillance

Sub-Function Water Quality Survey & Fixed Sampling Network Operations

Workload Indicator Total Pollution Sources = Total Industries, Municipalities, Power Plants and Feedlots

Source of Workload Indicator EPA State Programs Data Base Variable #11

Occupational Title	Quantitative Personnel Requirements — Increments of Workload Indicator									
	48,000 24,000	24,000 12,000	12,000 6,000	6,000 3,000	3,000 2,000	2,000 1,000	1,000 0			
Director	1	1	1	1	1	1	1			
Water Quality Info. Analyst	3	3	3	1	1	1	1			
Aquatic Biologist	6	5	3	2	1	1	1			
Microbiologist	3	2	1	1	1	1	1			
Chemist	6	5	4	2	1	1	1			
Laboratory Chief	3	2	2	2	1	1	1			
Water Quality Lab Technician	10	8	6	4	2	2	2			
**Marine Monitoring Specialist	1	1								
Groundwater Monitoring Specialist	1	1								
Aquatic Sampler	12	10	8	5	3	3	3			
Secretary/Clerk Typist	2	2	2	1	1	1	1			
TOTAL STAFFING	48	40	30	19	12	12	12			

Prepared by L. C. Whitler

Date 3/20/73

Approved _____

*Based on 3 comprehensive basin surveys and a statewide fixed sampling network.

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FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Monitoring and Data Support Division

Function: Water Monitoring and Surveillance

Sub-function: Water Quality Survey and Fixed Network Operations

Occupational title: Water Quality Monitoring Survey/Network Director

Duties: On a case by case basis, design and implement water monitoring surveys. Design and implement fixed station networks in "representative areas."

Sources (education and experience): Degree in Aquatic Biology or Sanitary, Chemical, or Industrial engineering, or equivalent required. Experience: at least five years in direction of, or participation in, design and implementation of water monitoring surveys and fixed monitoring networks, including analysis of data therefrom. Sources: Water research teaching, or planning, municipal or industrial water pollution control area, etc.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Annual short course in field and lab techniques and in quality control procedures.
- Annual seminar re: advancing technology in sampling and laboratory devices.

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FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Monitoring and Data Support Division

Function: Water Monitoring and Surveillance

Sub-function: Water Quality Survey and Fixed Sampling Network Operations

Occupational title: Water Quality Information Analyst

Duties: Employs statistical and other techniques to analyze data and information resulting from water quality studies and fixed network sampling to explain relationships among physical, chemical, and biological aspects of stream quality. Participates in water monitoring survey and fixed network design and implementation.

Sources (education and experience): Degree in Aquatic Biology, Sanitary, Chemical, or Industrial Engineering or equivalent required.
Experience: at least three years in analysis of water resources or water pollution information analysis.
Sources: Water resource education field; Municipal or industrial water pollution control area.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Annual short course in field and lab techniques and in quality control procedures.
- Annual seminar re: advancing technology in sampling and laboratory devices.

FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Monitoring and Data Support Division

Function: Water Monitoring and Surveillance

Sub-function: Water Quality Survey and Fixed Sampling Network Operations

Occupational title: Groundwater Monitoring Specialist

Duties: Participates in design of groundwater related segments of water quality surveys and fixed sampling networks. Participates in or directs field and laboratory activities relating to the subsurface environment.

Sources (education and experience): Degree in groundwater hydrology; mining; civil or sanitary engineering; geochemistry; or geology required.
Sources: academic institutions; earth resource or water pollution control activities.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- **Orientation short course related to environmental protection and water pollution control.**
- **Orientation short course on "Water Quality Studies".**
- **Annual seminars in field and lab techniques.**

FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Monitoring and Data Support Division

Function: Water Monitoring and Surveillance

Sub-function: Water Quality Survey and Fixed Sampling Network Operations

Occupational title: Marine Monitoring Specialist (for coastal states)

Duties: Participates in design of marine related segments of water quality surveys and fixed sampling networks. Participates in or directs field and laboratory activities relating to the marine environment.

Sources (education and experience): Degree in physical or chemical oceanography, civil or sanitary engineering, estuarine dynamics and/or limnology also desirable.
Sources: Oceanographic institutions, colleges, and universities; estuarine and coastal experience also desirable.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Orientation short course related to environmental protection and water pollution control.
- Orientation short course on "Water Quality Studies".
- Annual seminars in field and lab techniques.

FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Monitoring and Data Support Division

Function: Water Monitoring and Surveillance

Sub-function: Water Quality Survey and Fixed Sampling Network Operations

Occupational title: Aquatic Biologist

Duties: Participates in design of biological sampling programs; performs biological parameter analyses in field and lab; participates in analysis of biological data.

Sources (education and experience): Degree in Aquatic Biology (or related) or equivalent required.
Sources: Colleges or pollution study related areas.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Orientation short courses related to environmental protection and water pollution control.
- Orientation short course on "Water Quality Studies".
- Annual seminars in field and lab techniques.

FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Monitoring and Data Support Division

Function: Water Monitoring and Surveillance

Sub-function: Water Quality Survey and Fixed Sampling Network Operations

Occupational title: Microbiologist/Bacteriologist

Duties: Participates in design of sampling programs for micro-biota; performs analyses of micro-biota in field and lab; participates in analysis of data relating to micro-biota.

Sources (education and experience): Degree in microbiology, bacteriology, or biochemistry required.
Sources: Colleges or pollution study related areas.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- **Orientation short course related to environmental protection and water pollution control.**
- **Orientation short course on "Water Quality Studies".**
- **Annual seminars in field and lab techniques.**

III. PROGRAM AREA - RESEARCH AND MONITORING

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FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Monitoring and Data Support Division

Function: Water Monitoring and Surveillance

Sub-function: Water Quality Survey and Fixed Sampling Network Operations

Occupational title: Chemist

Duties: Participates in design of chemical sampling programs; performs field and lab chemical analyses.

Sources (education and experience): Degree in chemistry, biochemistry, or equivalent required.
Sources: Colleges or pollution study related areas.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- **Orientation short course related to environmental protection and water pollution control.**
- **Orientation short course on "Water Quality Studies".**
- **Annual seminars in field and lab techniques.**

FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Monitoring and Data Support Division

Function: Water Monitoring and Surveillance

Sub-function: Water Quality Survey and Fixed Sampling Network Operations

Occupational title: Laboratory Chief

Duties: Director, laboratory. Serves as administrative head of water quality laboratory: Directs activities or personnel engaged in testing or developing products, processes, or production equipment, or in making routine analyses of water quality parameters. Establishes and directs operation of laboratory control systems. Approves modifications of procedures. Assigns and schedules special projects. Verifies laboratory test reports. Compiles periodic and special reports on laboratory activities. Classifications are made according to particular science or branch of engineering concerned with, such as CHEMICAL-LABORATORY CHIEF.

Sources (education and experience): Degree in an environmental science required, plus minimum of five years experience or equivalent. Sources: Colleges and universities, water resource or water pollution related activities.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Annual short course in field and lab techniques, available devices, advancing technology.
- Frequent AQC seminars particularly relating to use of new equipment.
- Annual short course relating to "state-of-the-art".

FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Monitoring and Data Support Division

Function: Water Monitoring and Surveillance

Sub-function: Water Quality Survey and Fixed Sampling Network Operations

Occupational title: Water Quality Laboratory Technician

Duties: Performs routine chemical and biological parameter analyses. Tabulates and verifies bench card data. Participates in quality control procedures and follows other established lab procedures.

Sources (education and experience): Degree or associate degree in an environmental science desirable, or the equivalent in field or laboratory experience.
Sources: Colleges, universities and technical schools.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- **Orientation short course on EPA AQC techniques.**
- **Orientation short course on "Water Quality Studies".**
- **Annual seminar in lab and field determination techniques.**

FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Monitoring and Data Support Division

Function: Water Monitoring and Surveillance

Sub-function: Water Quality Survey and Fixed Sampling Network Operations

Occupational title: Aquatic Sampler

Duties: Following strict quality control procedures and time schedules, takes water samples utilizing specialized sampling devices. Operates boats or other sampling platforms as required.

Sources (education and experience): High school diploma and/or other courses in environmental sciences desirable.
Sources: High schools, technical education center or schools, etc.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- **Orientation short course in water sampling techniques.**
- **Annual seminar in sampling devices.**
- **Orientation short course on methods for making elementary field determinations.**

II. PROGRAM AREA - MONITORING AND DATA SUPPORT

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FUNCTION: WATER MONITORING AND SURVEILLANCE

SUB-FUNCTION: DATA HANDLING AND PROCESSING

FUNCTION:

Water Monitoring and Surveillance

Develop and implement or improve and expand water monitoring and surveillance programs to meet requirements of the Federal Water Pollution Control Act Amendments of 1972.

SUB-FUNCTION:

Data Handling and Processing

Consists of reducing field and laboratory data to computer-readable form, and of storing, manipulating, and retrieving resulting data to meet other needs of subfunction 1 (p.3), and for other uses.

PROGRAM DESCRIPTION

MONITORING AND DATA SUPPORT

I. Outline of Legislation:

A. Federal Water Pollution Control Act Amendments of 1972 (Water Bill), PL 92-500

Sec. 104(a)(5) - "in cooperation with States, and other Federal agencies establish, equip and maintain a Water Quality Surveillance System..."

Sec. 106(e)(1) - "...Administrator shall not make any (State Program) grant (unless the State makes provision to) monitor and to compile and analyze data on...the quality of navigable waters and...groundwaters...and...include it in the report required under Section 305..."

Parentheses Added

Sec. 303(e) - "Each State shall have a continuing planning process..."

Sec. 305(a) - "...Administrator shall prepare a report to be submitted...on January 1, 1974 which shall...describe the specific quality of all navigable waters...an inventory of all point sources of discharge..."

Sec. 305(b) - "...Each State shall...submit...each year (beginning January 1, 1975)...a description of the quality of all navigable waters...the extent to which...waters provide for...shellfish, fish and wildlife..."

Parentheses Added

Sec. 308(a) - "...Administrator shall require the...operator of any point source to...sample such effluents...in such manner as the Administrator shall prescribe...or his authorized representative...shall have right of entry..."

Sec. 314 - "Clean Lakes"

Title IV - "...any...discharge will comply with...provision..."

Underlining Added

Preceding page blank

B. Marine Protection, Research and Sanctuaries Act of 1972 (Ocean Dumping Bill), PL 92-532

Sec. 102(a) - Permits and criteria for ocean dumping

Sec. 107 - Surveillance and Enforcement - CG

Title II - Monitoring and Research - NOAA

II. Objective: To monitor the state of the Nation's waters in conformance with current legislative and executive determination.

III. Strategy:

A. To support States technically and financially in developing an adequate program, and effluent monitoring and surveillance.

B. To fulfill congressional directive and other reporting requirements.

C. To provide technical assistance and support as required.

IV. Roles and Responsibilities:

A. EPA Headquarters -

1. Develops and promulgates regulations and guidelines relating to state monitoring and surveillance including minimum specifications for such a program.
2. Reviews for approval State monitoring plans.
3. Monitors compliance of states to approved plans.
4. Carries out necessary intra- and interagency coordination.
5. Evaluates adequacy of existing monitoring network including federal and state stations.
6. Provides technical assistance as required.
7. Provides information system support to Regions and States.

B. EPA Regions

1. Works closely with and provides technical assistance to states in design and implementation of monitoring and surveillance programs encompassing all phases of such program including field, laboratory, data analysis, and information systems support.
2. Designs and carries out monitoring surveys and operates routine monitoring stations.

3. Reviews and evaluates state monitoring programs as represented in states applications for program grants.

4. Performs annual mid-year review of state progress toward carrying out plans.

C. Other Federal Agencies

1. Consider need for environmental protection-oriented data when establishing and operating water sampling or monitoring programs.

2. Participate in monitoring surveys and routine monitoring networks.

3. Provide use of specialized equipment.

D. States

1. The primary responsibility for monitoring and surveillance rests on the States which, in accordance with regulations and guidelines promulgated by EPA Headquarters, must have monitoring programs to meet specific reporting needs in order to receive program grants.

E. The Private Sector

Industires, as well as municipalities, will be required to self-monitor effluent flows and characteristics.

F. Effects of Alternate Strategies

The basic strategy does not change with varying levels of funding. Only timing is affected.

STAFFING GUIDE

Program Monitoring & Data Support Division

Function Water Monitoring & Surveillance

Sub-Function Data Handling & Processing

Workload Indicator Total Pollution Sources = Total Industries, Municipalities, Power Plants and Feedlots

Source of Workload Indicator EPA State Programs Data Base Variable #11

Occupational Title	Quantitative Personnel Requirements Increments of Workload Indicator									
	48,000 24,000	24,000 12,000	12,000 6,000	6,000 3,000	3,000 2,000	2,000 1,000	1,000 0			
Data Support Director	1	1	1							
Computer Systems Analyst/Programmer	3	2	1	1	1	1	1			
Data Processing Clerk	6	4	3	2	2	1	1			
Secretary Clerk/Typist	2	1	1	1	1	1	1			
TOTAL STAFFING	12	8	6	4	4	3	3			

Prepared by L. C. Wastler

Approved _____

Date 3/20/73

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FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Monitoring and Data Support Division

Function: Water Monitoring and Surveillance

Sub-function: Data Handling, and Processing

Occupational title: Data Support Director

Duties: Directs data reduction and automation activities. Provides hardware and software for data storage, retrieval, manipulation, and reporting. Supports needs of study design and data analysis personnel.

Sources (education and experience): Strong background, including experience, in computer sciences or operations, statistics and data evaluation required.
Sources: Academic institutions, computer training schools, environment related computer activities.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Quarterly seminars in the "state-of-the-art".
- Orientation short course on "Water Quality Studies".
- Annual short course in modeling techniques and new computer applications.

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FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Monitoring and Data Support Division

Function: Water Monitoring and Surveillance

Sub-function: Data Handling, and Processing

Occupational title: Computer Systems Analyst/Programmer

Duties: Converts scientific, engineering and other technical problem formulations to formulae processable by computer. Reviews results of computer runs with interested technical personnel. Develops new subroutines for a specific area of application or expands on applicability of current general programs to simplify statement, programming, or coding of future problems. May supervise other programming personnel. May specialize in single area of application.

Sources (education and experience): Background and experience in computer sciences and/or operations, mathematics, and statistics required. Sources: Academic institutions, computer training schools, environment-related computer activities.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- **Quarterly seminars in the "state-of-the-art".**
- **Orientation short course on "Water Quality Studies".**
- **Annual short course in modeling techniques and new computer applications.**

FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Monitoring and Data Support Division

Function: Water Monitoring and Surveillance

Sub-function: Data Handling, and Processing

Occupational title: Data Processing Clerk

Duties: Participates in elementary data reduction, including data tabulations, keypunching and/or verifying. Keeps records of documents handled, computer run logs, etc.

Sources (education and experience): High school diploma and training in unit records or peripheral equipment operations required.
Sources: High schools, computer or keypunching schools.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- **Annual short course in new equipment and techniques.**
- **Orientation seminar on importance of role in enforcement, etc.**

FUNCTION: RESEARCH AND MONITORING

No definition provided

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PROGRAM DESCRIPTION - RESEARCH AND MONITORING

No description provided

Preceding page blank

STAFFING GUIDE

Sheet 1 of 1

Program Research & Monitoring

Function Research & Monitoring

Sub-Function None

Workload Indicator Total Pollution Sources = Total Industries, Municipalities, Power Plants and Feedlots

Source of Workload Indicator EPA State Programs Data Base Variable #11

Occupational Title	Quantitative Personnel Requirements Increments of Workload Indicator									
	48,000 24,000	24,000 10,000	10,000 3,000	3,000 0						
Science Advisor	1	1	1	1*						
Research Assistant	1	1*								
Office Secretary-Typist	1	1	1*	1*						
TOTAL STAFFING	3	2+1*	1+1*	2*						

Prepared by Glenn D. Wagner

Approved _____

Date March 1973

*Part-Time

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FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Research and Monitoring

Function: Research and Monitoring

Sub-function: None

Occupational title: Science Advisor

Duties: Serves as science advisor to State agencies and programs on environmental research and monitoring developments and requirements affecting environmental improvement and pollution control within the State. Provides liaison with Federal agencies, regional organizations, other States, local governments, and public and private organizations, educational institutions and associations on environmental matters, with particular reference to the exchange of research and monitoring information and ideas. Serves as the focal point for the identification and implementation of State environmental research and monitoring needs, and for the inventory and dissemination of information on ongoing and proposed research and monitoring projects within and applicable to the State. Seeks public and private participation in and support of needed research and monitoring efforts, including cooperative activities and projects. Reviews, advises on, and coordinates such efforts. Assures that research and monitoring interests and needs are incorporated in State programs and budgets, and are included in public information activities. Establishes and participates in advisory, intergovernmental, ad hoc and other committees and task groups on environmental programs and problems. Promotes the introduction and transfer of new research and monitoring technology to improvement of the environmental and the abatement and control of pollution within the State, and maintains liaison with governmental and private programs in this area.

Sources (education and experience): Advanced degree in environmental sciences; with emphasis on scientific disciplines in ecology, air and water quality, solid wastes management, pesticides. Extensive experience in the environmental field with research and monitoring responsibilities, and some public environmental program management experience. Familiar with environmental problems and needs. Additional training in or experience in one or more of the following areas preferred: urban planning and economics, transportation and land use planning, environmental policy and management systems, environmental engineering or law.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Seminars (as needed) on "state-of-the-art" in: Environmental Research, Monitoring, and Technology Transfer.

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FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Research and Monitoring

Function: Research and Monitoring

Sub-function: None

Occupational title: Research Assistant (to the Science Advisor)

Duties: Serves as Research Assistant to the State Science Advisor providing general staff assistance in carrying out the responsibilities of that office. Performs studies and analysis of environmental problems, approaches and projects within, affecting or having applicability to the State and presents recommendations for needed action and improvement. Develops informational materials and highlight and progress reports on environmental issues, research and monitoring activities and needs, and related State programs and responsibilities. Prepares in-depth research and monitoring needs statements, evaluating alternatives, costs and benefits, State-Federal-local-other organization roles and responsibilities, and presenting action recommendations. Performs project management, coordination and liaison responsibilities on ongoing and proposed research and monitoring projects. Identifies needs and develops proposals for technology transfer orientation, training and implementation. Represents the Science Advisor's office on assigned committees in meetings and conferences.

Sources (education and experience): College education with strong environmental sciences background, preferably in varied environmental related disciplines. Practical experience in research and environmental programs, with emphasis on policy and program analysis and research information skills. Governmental experience and knowledge of public administration and State and local relationships. Must be a good writer and communicator.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Annual short course in environmental problems and issues.
- Seminars (as needed) on "state-of-the-art" in research and monitoring problems.

IV. PROGRAM AREA - OIL AND HAZARDOUS MATERIALS

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FUNCTION:

Oil and Hazardous Substances

Implementation of a State spill prevention and response program as an integral part of a National program entails both planning and operational actions, all coordinated with a number of Federal agencies and other State agencies. There are levels of ongoing sub-functions for contingency plan preparation and updating, spill response, facility inspections, review and approval of facility spill prevention plans where pertinent, collection and analysis of data relative to response and methods of containment and countermeasures, and necessary Federal and other State agency coordination.

PROGRAM DESCRIPTION

OIL & HAZARDOUS MATERIALS

I. Outline of Legislation: Water Pollution Control Amendments of 1972

Section 311: Oil and Hazardous Substance Liability
This Section of the Act declares that it is the policy of the United States that there should be no discharges of oil or hazardous substances into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone. Requirements are stipulated for spill notification, violator cleanup response, or if failing, Federal and State cleanup response, prevention programs, and civil and criminal penalties for enforcement. In turn, these requirements dictate the issuance of several regulations by EPA and the U.S. Coast Guard, the two Federal agencies who jointly administer and implement the National program with evolving support from the States.

II. Objective: The primary objective of the oil and hazardous substance program is to enhance water quality and protect beneficial water uses through the elimination of spills, reduction of operational discharges, and minimizing the impact of spills on the environment.

III. Strategy: A three-phase program has been jointly developed by EPA and the U.S. Coast Guard which includes response, prevention and enforcement. Implementation by EPA regions and Coast Guard Districts includes response and enforcement with primary emphasis on prevention through the issuance of spill prevention regulations. The initial thrust of the implementation strategy is Federally-oriented but an optimum cost/benefit

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overall spill prevention goal envisions a full Federal/State implementation by FY 1976. Section 311 provides for State participation in spill cleanup response now for which Federal guidelines with respect to Federal/States' roles and responsibilities are being developed.

IV. Roles and Responsibilities:

A. EPA Headquarters, Office of Air and Water Programs

1. Formulates the National spill prevention and response program in concert with the U.S. Coast Guard.
2. Promulgates regulations required by Section 311 in accordance with the delegation of responsibilities in E.O. 11548.
3. Develops and provides program guidelines for Regional and State implementation.
4. Develops and recommends research, development and demonstration studies in spill response, prevention and environmental impact.
5. Prepares, in coordination with U.S. Coast Guard and other designated Federal agencies, the National Oil and Hazardous Substance Pollution Contingency Plan.

B. EPA Regions

1. Implements the spill prevention and response program, including all responsibilities incident to carrying out the provisions of the National Pollution Contingency Plan.
2. Gathers evidence from spill incidents for transmittal to EPA and Coast Guard enforcement programs.
3. Coordinates with respective State WPC or designated agencies for spill response and prevention programs.
4. Prepares Regional Pollution Contingency Plans.

C. State Agencies

1. Coordinates with EPA Regional spill prevention personnel on spill response.
2. Designates (optional) a liaison with the Federal Regional Response Team and an agency of the State government to supervise State removal operations, when these operations can be reimbursed by

Federal pollution revolving fund in accordance with regulations to be issued by the U.S. Coast Guard.

3. Supports the National spill prevention and response program once EPA Regional, USCG District, and State complementary responsibilities have been established.

STAFFING GUIDE

Program Oil & Hazardous Materials

Function Oil & Hazardous Substance Spill Prevention & Response

Sub-Function* None

Workload Indicator Estimate of magnitude of oil & hazardous substance problem

Source of Workload Indicator Staff from Oil & Hazardous Materials Division, OWPO

Occupational Title	Quantitative Personnel Requirements Increments of Workload Indicator									
	A	B	C	D	E	F				
Spill Prevention & Response Specialist*	9	7	5	4	3	2				
Spill Prevention & Response Technician	7	5	3	2	1	-				
Clerk-typist	4	2	2	1	1	1				
TOTAL STAFFING	20	14	10	7	5	3				

*The Spill Prevention and Response Specialist should be drawn from the following disciplines: in those states where staff size is sufficiently large to permit diversity: sanitary engineer, petroleum engineer, chemical engineer, civil engineer, chemist, biologist.

Prepared by D.R. Jones/review by R. T. Jones, Manpower Planning Branch

Approved _____

Date March 16, 1973

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FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Oil and Hazardous Materials

Function: Oil and Hazardous Substance Spill Prevention and Response

Sub-function: None

Occupational title: Spill Prevention and Response Specialist

Duties: Prepare and update contingency plans; respond to spills; inspect facilities, review and approve facility spill prevention plans; collect and analyze data relative to response and methods of containment and countermeasures; collect data for enforcement purposes.

Sources (education and experience): Education in sanitary engineering, petroleum engineering, civil engineering, chemical engineering, biology or chemistry. Field experience and leadership qualities are important in directing cleanup, containment, and countermeasure operations at a spill site. The complex nature of hazardous substance spill problems can require considerable chemical and biological expertise. Thus, in states which have larger staffs, diversity in background is desirable.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Orientation short course in occupational safety considerations involved in activities dealing with hazardous materials.

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FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Oil and Hazardous Materials

Function: Oil and Hazardous Substance Spill Prevention and Response

Sub-function: None

Occupational title: Spill Prevention and Response Technician

Duties: Work in direct support on Spill Prevention and Response Specialist; perform routine reviews of spill prevention plans, site visits and inspections; may participate in spill response, working under the direction of the Spill Prevention and Response Specialist; may act as on-scene coordinator for smaller spills.

Sources (education and experience): Background in biology, chemistry and engineering, with some knowledge of spill prevention and response techniques.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Orientation short course in occupational safety considerations involved in activities dealing with hazardous materials.
- Orientation short course on EPA regulations, procedures for spill response, and planning for control of oil and hazardous materials (see OWPO course on "Control of Oil and Other Hazardous Materials").

V. PROGRAM AREA - MUNICIPAL WASTE WATER SYSTEMS

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FUNCTION: OPERATIONS AND MAINTENANCE

No definitions provided

SUB-FUNCTION: Plant Inspection

No definitions provided

PROGRAM DESCRIPTION

MUNICIPAL WASTE WATER SYSTEMS

I. Outline of Legislation:

Function: Plant Inspection

Section 204(a)(4): "Before approving grants for any project for any treatment works under section 201(g)(1) the Administrator shall determine...that the applicant... has made adequate provisions satisfactory to the Administrator for assuring proper and efficient operation...and the maintenance of such works in accordance with a plan of operation approved by the State water pollution control agency...after construction thereof;..."

Section 308(c): "Each state may develop and submit to the Administrator procedures under state law for inspection, monitoring, and entry with respect to point sources located in such state."

Function: Review of Plans and Specs

Section 203(a): "Each applicant for a grant shall submit to the Administrator for his approval plans, specifications, and estimates for each proposed project for the construction of treatment works for which a grant is applied for under Section 205. ... The Administrator shall act upon such plans...as soon as practicable..."

Section 204(a): "Before approving grants for any project for any treatment works under section 201(g)(1) the Administrator shall determine...
(5) that the size and capacity of such works relate directly to the needs to be served..."

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II. Objective: Not provided.

III. Strategy: Not provided.

IV. Roles and Responsibilities:

The function of reviewing plans and specifications is delegated to the states.

No other information provided.

STAFFING GUIDE

Sheet 1 of 1

Program _____

Function Operations & Maintenance

Sub-Function Plant Inspection

Workload Indicator Estimated Inspections in Man-Days

Source of Workload Indicator STORET: Municipal Waste Facilities Directory, and Construction Grants $$ FY-73, FY-74

Occupational Title	Quantitative Personnel Requirements — Increments of Workload Indicator													
	0 256	257 525	526 693	694 937	988 1,203	1,204 1,421	1,422 1,714	1,715 1,959	1,960 2,125	2,126 2,464	2,465 2,680	2,681 3,143	3,144 3,595	3,597 4,163	4,164 5,233
Plant Inspection Specialist	1	1	1	1	2	2	2	3	3	3	4	4	5	6	8
Plant Inspection Technician	-	-	2	3	3	4	5	5	6	7	7	9	10	11	14
TOTAL STAFFING	1	2	3	4	5	6	7	8	9	10	11	13	15	16	22

Prepared by R. Rea, Manpower Planning Branch Approved _____

Date May 9, 1973

FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Municipal Waste Water Systems

Function: Operations and Maintenance

Sub-function: Plant Inspection

Occupational title: Plant Inspection Specialist

Duties: During plant inspection, note the units operating and reasons why out of service units are not operating. Sample influents and effluents and perform on-site analyses for chlorine residual, pH, dissolved oxygen, temperature, etc. Send samples to the laboratory for analysis. Give technical assistance to plant operators.

Sources (education and experience): Two to three years of college education in civil, mechanical or chemical engineering. Three to five years of experience in operating both large and small plants. Completion of two year course in Wastewater Technology is desirable.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

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FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Municipal Waste Water Systems

Function: Operations and Maintenance

Sub-function: Plant Technician

Occupational title: Plant Inspection Technician

Duties: Fill out fact sheets during plant inspection. Note units operating and reasons why out of service units are not operating. Sample influents and effluents and perform on-site analyses for chlorine residual, pH, dissolved oxygen, temperature, etc. Send samples to the laboratory for analysis. Submit reports of visits to a Senior Plant Inspector for interpretation.

Sources (education and experience): Graduate of 2-year technical school.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Orientation short course on the completion of inspection forms and reports.

VI. PROGRAM AREA - MUNICIPAL WASTE WATER SYSTEMS

Preceding page blank

FUNCTION: REVIEW OF PLANS AND SPECIFICATIONS

No definition provided

PROGRAM DESCRIPTION

MUNICIPAL WASTE WATER SYSTEMS

I. Outline of Legislation:

Function: Plant Inspection

Section 204(a)(4): "Before approving grants for any project for any treatment works under section 201(g)(1) the Administrator shall determine...that the applicant... has made adequate provisions satisfactory to the Administrator for assuring proper and efficient operation...and the maintenance of such works in accordance with a plan of operation approved by the State water pollution control agency...after construction thereof;..."

Section 308(c): "Each state may develop and submit to the Administrator procedures under state law for inspection, monitoring, and entry with respect to point sources located in such state."

Function: Review of Plans and Specs

Section 203(a): "Each applicant for a grant shall submit to the Administrator for his approval plans, specifications, and estimates for each proposed project for the construction of treatment works for which a grant is applied for under Section 205. ... The Administrator shall act upon such plans...as soon as practicable..."

Section 204(a): "Before approving grants for any project for any treatment works under section 201(g)(1) the Administrator shall determine...
(5) that the size and capacity of such works relate directly to the needs to be served..."

Preceding page blank

II. Objective: Not provided.

III. Strategy: Not provided.

IV. Roles and Responsibilities:

The function of reviewing plans and specifications is delegated to the states.

No other information provided.

STAFFING GUIDE

Sheet __ of __

Program Municipal WastWater Systems

Function Review of Plans and Specs

Workload Indicator Estimated Review Man-Weeks

Sub-Function None

Source of Workload Indicator STORET: Municipal Waste Facilities Dir. and Construction Grants $$ FY-73, FY-74

Occupational Title	Quantitative Personnel Requirements — Increments of Workload Indicator									
	9-59	60-106	107-134	135-208	209-230	231-281	282-352	353-412	413-439	440-650
Plans & Specs Review Spec.	1	1	2	2	3	3	4	4	5	7
Plans & Specs Review Techni.	-	1	1	2	2	3	3	4	4	6
TOTAL STAFFING	1	2	3	4	5	6	7	8	9	13

Prepared by R. Rea, Manpower Planning Branch Approved _____

Date 5/9/73

FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Municipal Waste Water Systems

Function: Review of Plans and Specs

Sub-function: None

Occupational title: Senior Plans and Specs Reviewer

Duties: Receive plans and specifications submitted by municipalities for review. Compare the plans with state standards for good practice. Comment on the appropriateness of sizes and capacities of components, the design time period, population projections, the reliability of components proposed, the number and use of pumps, etc. Accept or reject plans.

Sources (education and experience): B.S., Civil Engineering, Sanitary specialty with 3 years of design experience. Must be capable of careful reading of plans, interpretation of design objectives and approaches and thorough and complete analytical work. State registration as a professional engineer is desirable.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Quarterly seminar in new technology in design of municipal waste water systems.

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FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Municipal Waste Water Systems

Function: Review of Plans and Specs

Sub-function: None

Occupational title: Junior Plans and Specs Reviewer

Duties: Receive plans and specifications submitted by municipalities for review. Compare the plans with state standards for good practice. Comment on the appropriateness of sizes and capacities of components, the design time period, population projections, the reliability of components proposed, the number and use of pumps, etc. Accept or reject plans.

Sources (education and experience): B.S., Civil Engineering, Sanitary specialty. No experience required. Must be capable of careful reading of plans, interpretation of design objectives and approaches and thorough and complete analytical work.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Annual seminar on new technology in design of municipal waste water systems.

VII. PROGRAM AREA - MANPOWER DEVELOPMENT

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FUNCTION: MANPOWER DEVELOPMENT

FUNCTION:

Manpower Development

Develops and implements a statewide water pollution control manpower development system directed to assure the continued availability of trained and motivated personnel to maintain an adequate water supply and for the prevention, control, and abatement of water pollution. Provides a focal point in the State Water Pollution Control Agency for matters related to manpower planning, manpower development and utilization. Coordinates development of a manpower planning system to relate manpower needs to training requirements. Coordinates, develops, and manages programs in the state to train wastewater treatment plant operators. Coordinates program to develop curricula and training materials in support of programs. Develops cooperative federal, state and local intergovernmental relationships. Provides the initiative and leadership in the development of local programs. Administers a certification program to ensure that water supply and wastewater treatment plants are managed and operated by properly qualified personnel.

Note: No sub-functions

PROGRAM DESCRIPTION

MANPOWER DEVELOPMENT

I. Outline of Legislation: Water Pollution Control Amendments of 1972

Section 104: National program for research, investigations, training and information

Section 104(a)(1): National Training Program

Section 104(b):

(1) Training information collection and dissemination

(3) Grants to public and non-profit agencies

(4) Contracts to public and private agencies

(5) Research Fellowships for graduate students

Section 104(g):

(1) O/M training

(2) Manpower forecasting

(3) A - Training Project Grants

(3) B - EPA Research Fellowships

(3) C - Direct technical training

(4) Report to Congress (12/31/73)

Section 109(a): Grants and contracts for undergraduate training

(A) O/M planning

(B) Training facilities

(C) Short term courses

(D) Innovative programs

(E) Training method research

Section 109(b): Training facility grants

Section 110(a): Application for grants/contracts

(b): Allocation of grants/contracts

Section 111: Undergraduate scholarship awards

Section 112(a): Training definition

(b): Annual report on training

(c): Training authorization

Section 516(a): Annual Report to Congress

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II. Objective(s): Assuring that there is an adequate number of trained personnel to meet the needs of the National Water Pollution Control Program.

III. Strategy(s): To establish capabilities in state and local water pollution control agencies to determine their manpower and training needs and to plan and conduct necessary training programs in cooperation with counterpart manpower and education agencies. The Manpower Development Staff is to assist and provide technical and financial assistance to state and local agencies in developing the necessary capabilities through: (1) provision of manpower planning and training guidance materials which can be most economically be provided from one source; (2) provide financial and technical support in areas for which capabilities do not exist in state and local agencies; (3) conduct training in water pollution control technology and management systems which cannot economically be given or which capabilities have been established in individual states.

IV. Roles and Responsibilities:

A. EPA Headquarters -

1. Formulate and administer overall program to rectify imbalances, relative to supply, and plan regional programs.
2. Develop and provide guidance to federal-state-local manpower planning system.
3. Develop and disseminate manpower planning and training materials.
4. Fill in technical and training gaps of EPA regions.
5. Administer training and manpower development grants and contracts.
6. Provide technical and financial assistance to state/local agencies.

B. EPA Regions

1. Make regional forecasts of manpower and training needs.
2. Provide technical assistance.
3. Fill in existing training gaps of state and local agencies.
4. Administer training/manpower contracts and grants.

C. Other Federal Agencies

1. Incorporate WPC courses/materials into existing projects such as CAMPS.
2. Provide technical/financial assistance.
3. Implement state certification requirements.

D. State Agencies

1. Formulate and administer overall state manpower program.
2. Administer training programs and projects.
3. Determine state manpower needs and training requirements and plan programs to meet these needs.
4. Provide EPA with manpower and training information.
5. Plan and implement solutions to problems concerning the recruitment, retention and utilization of state personnel.
6. Administer operator certification program.

E. Local WPC Agencies

1. Determine manpower and training requirements and plan programs to meet needs in cooperation with state and local agencies.
2. Conduct training course and provide for on-the-job training of personnel.
3. Implement solution to recruitment, retention and utilization problems through modern personnel management practices.

F. Private Sector

1. Conduct on-the-job training and highly specialized industrial water pollution control courses for own personnel.
2. Provide for modern personnel management practices including career opportunities, competitive salary structure and certification program participation.

Program Manpower Development

Function Manpower Development

Sub-Function None

Workload Indicator Total Pollution Sources = Total Industries, Municipalities, Power Plants and Feedlots

Source of Workload Indicator EPA State Programs Data Base Variable 011

Occupational Title	Quantitative Personnel Requirements — Increments of Workload Indicator									
	48,000 – 24,000	24,000 – 12,000	12,000 – 6,000	6,000 – 3,000	3,000 – 2,000	2,000 – 1,000	1,000 – 0			
Director	1	1	1	1	1	1*				
Manpower Specialist	1	1					1*			
Training Specialist	2	2	2	1	1	1				
Manpower Planning Specialist	1	1	1	1	1	1				
Manpower Technician	2	1	1	1			1			
Clerk-typist-Secretary	3	2	2	2	1	1	1			
Certification Administrator	1	1	1	1	1	*	*			
Certification Clerk	2	2	1	1	1	1				
TOTAL STAFFING	13	11	9	8	6	5	3			

Prepared by R. Rose

Approved _____

Date February 1971

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FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Manpower Development

Function: Manpower Development

Sub-function: None

Occupational title: Director, Manpower Development Staff

Duties: Directs the development and implementation of a statewide water pollution control manpower development system directed to assuring the continued availability of trained and motivated personnel. Provides the focal point for matters related to manpower planning, development and utilization. Responsible for coordinating the development of a manpower planning system to relate manpower needs to training requirements. Coordinates, develops and manages program in the state to train WWTP operators. Manages program to develop curricula and training materials. Responsible for enhancing Federal, State and local cooperation. Provides central administration for the certification of water supply and wastewater operations personnel.

Sources (education and experience): College degree required in either Industrial Psychology, Industrial Engineering, Business, Education, Economics, or Sanitary Engineering. Must have at least 6 years of management experience in manpower planning and/or training activities. Position requires knowledge of modern personnel management and government activities.
Sources: Manpower Development Staff of the state WPC agency, other government agencies, private organizations or armed forces.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Annual short course in manpower/training techniques.
- Orientation course in water pollution control requirements, policies, procedures, standards, equipment and processes.

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FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Manpower Development

Function: Manpower Development

Sub-function: None

Occupational title: Manpower Specialist

Duties: Acts as assistant to the "Supervisor, Manpower Development". Is responsible for staff operations during his absence. In states where "Supervisors" and "Training and Planning Specialists" are not required, "Manpower Specialist" assumes their duties and responsibilities. (See occupational definitions for "Supervisor, Manpower Development Staff", "Manpower Planning Specialist" and "Training Specialist".)

Sources (education and experience): Same as "Supervisor, Manpower Development Staff" except 4 years of experience required in order to fill position adequately.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Annual course in manpower planning techniques.
- Annual course in training and education.
- Orientation short course in personnel management.

FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Manpower Development

Function: Manpower Development

Sub-function: None

Occupational title: Training Specialist

Duties: Administers and coordinates training programs statewide, for personnel in professional and non-professional water pollution control jobs. Coordinates with and maintains liaison with Federal, State and municipal education and training organizations. Coordinates with other agencies and develops programs to train wastewater treatment plant operators and other personnel categories. Develops curricula and training materials. Provides assistance to educational institutions to obtain resources for training. Identifies and coordinates training requirements with state manpower planning specialist. Serves as training advisor. Reviews and evaluates training program effectiveness.

Sources (education and experience): Past instructor, monitor or experience in education and training with other State or local organizations and institutions. College degree in education, sanitary engineering, chemistry or equivalent required. At least 4 years experience in governmental training and education programs required. Must have knowledge of modern education practices.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Annual short course in modern education techniques.
- Annual course in water pollution training techniques.

FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Manpower Development

Function: Manpower Development

Sub-function: None

Occupational title: Manpower Planning Specialist

Duties: Develops forecasts of water pollution control manpower and training requirements, relative to supply, of governmental and private organizations in the state. Prepares action plans for developing the required workforce and for overcoming manpower development and utilization problems. With the assistance of Federal guidelines, develops, coordinates and implements a statewide system for the production, maintenance and dissemination of manpower planning criteria covering water pollution control activities of state and local agencies and private organizations. Works with training specialist in cooperative effort to provide timely source of capable manpower. Provides technical assistance to other state WPC agency staffs relative to determining manpower requirements and problems of recruitment, retention and utilization.

Sources (education and experience): College degree desirable in either Industrial Psychology, Industrial Engineering, Business Administration, Education, Economics or Sanitary Engineering. Should have at least 4 years prior managerial experience with WPC type agency. Must have general understanding of WPC processes and equipment. Must have knowledge of modern managerial concepts and manpower planning techniques. Sources: State or local WPC organizations, private organizations or armed fources.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Annual short course in latest manpower planning techniques or personnel management processes.
- Annual course on Federal, State and local WPC manpower planning developments.
- Orientation professional manpower planner seminar.

FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Manpower Development

Function: Manpower Development

Sub-function: None

Occupational title: Manpower Technician

Duties: Assist the Manpower Planning Specialist to develop forecasts of WPC manpower and training requirements. Assist in producing, processing, storing and communicating the data required. Contribute to the preparation of action plans for the development and utilization problems. Assist in maintaining and disseminationg manpower planning criteria covering water pollution control activities of State and local agencies and private organizations. Compile, help analyze and evaluate technical, statistical and administrative data.

Sources (education and experience): College degree not required. Two-year college background in business or engineering desirable. Must have at least two years of experience in manpower or training related activities. Knowledge of government administration helpful. Sources: State or local manpower training or employment agencies, private organizations or armed forces.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Annual course in manpower planning or training.
- Annual course in modern personnel management practices.
- Annual course in organizational relationships or policy formulation and procedures.

FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Manpower Development

Function: Manpower Development

Sub-function: None

Occupational title: Certification Administrator

Duties: Administer the water supply and wastewater facilities operator certification program. Duties include participation in Federal, State and local government activities pertaining to the administration and advancement of certification, the development and enforcement of rules and regulations for certifying operator personnel, the conduct of certification tests, the issuance of certification certificates, the collection of fees and the renewal of certificates as well as their revocation. Establishes reciprocal arrangement for water pollution operator personnel entering and leaving the State.

Sources (education and experience): Must have at least high school education. College degree in Sanitary Engineering, Education or Business preferred. At least 6 years of experience in water supply or wastewater control technology required. Managerial experience necessary. Sources: Past participation in operator certification program, past certification clerk, educator or training instructor.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Annual short course on certification programs, reciprocity, testing instruments and training techniques.
- Annual course on personnel administration and personnel management practices.

FORM 4: FUNCTIONAL OCCUPATIONAL DEFINITION

Program: Manpower Development

Function: Manpower Development

Sub-function: None

Occupational title: Certification Clerk

Duties: Assist "Certification Administrator" in the conduct of his duties, including record keeping pertaining to certificate issuance and operator status. Processing and filing of tests and various records including operator applications; additionally, provides logistics, i.e., schedules facilities for holding tests, reproduces various types of examinations, records grades on tests and sees that general instructional material is handed or mailed out prior to testing dates.

Sources (education and experience): High school education required. Knowledge of business and statistical practices required. At least 1 year of prior experience needed in order to perform administrative tasks effectively.

Training requirements (e.g., update, upgrade, short courses):
Frequency/Duration:

- Orientation short course on certification programs.
- Annual course on personnel administration and procedures.